STRUS, Anastazja

Activities of the Qualifying Commission of Scientific Workers and Workers of Divisions of the Polish Academy of Sciences. Nauka polska 12 no. 3:171-174 My-Je '64.

1. Office of Education and Perfection of Scientific Workers, Polish Academy of Sciences, Warsaw.

STRUS, Anastazja

Activities of the Qualifying Commission of Scientific Workers and Divisions of the Polish Academy of Sciences, Warsaw. Nauka polska 12 no.4:212-219 Jl-Ag '64.

1. Polish Academy of Sciences, Office of Education and Perfection of Scientific Cadres, Warsaw.

Struser, L. R.

1787. Struser, L. R., Accidental errors in evaporation values calculated by the method of turbulent diffusion (in Russian), *Trudi Gos. Gidrolog. in-ta* no. 48, 66–80, 1955; *Ref. Zh. Mekh.* no. 11, 1956, Rev. 7588.

To determine the intensity of evaporation E by the method of turbulent diffusion, the following formulas are used

$$E = 2.1\ K\Delta e\ (mm/hr);$$
$$K = 0.104\ \Delta u\ [1 + 1.39\ (\Delta t/(\Delta u)^2)]\ (m^2/sec);$$

where Δe, Δu, Δt are the differences of the absolute humidity, wind velocity, and temperature, at the altitudes of 1.5 and 0.5 m, counting from the boundary of the displacement layer, K has the significance of the coefficient of (turbulent) exchange at the altitude of 1 m. The total diurnal evaporation is calculated with the help of the interpolation formula

$$U = \sum_{\nu=1}^{m} a_\nu \tau_\nu \tilde{E}_\nu$$

in which E_ν = mean intensity of evaporation in the time interval τ_ν; a_ν = numerical coefficients.

Author analyzes errors arising in the determination of E and U, and caused by accidental errors in the measurement of the gradients. These can be very considerable. Thus, an example is given of the measurement of Δe by eight different instruments arranged in a single row, during nine successive time intervals of 7 minutes each; the value of Δe for each seven-minute period was taken as the mean of three readings made during these seven

PROKHOROV, Yu.M. (Novosibirsk 99, ul. Lenina, d. 17, kv. 10); STRUSEVICH, A.V.; SHABANOV, A.M.

Morphological examination of a medial fracture of the femoral neck after internal fixation with a metallic pin. Ortop., travm. i protez. 24 no.3:23-27 Mr '63. (MIRA 17:2)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - dotsent M.D. Ponomarev) i kafedry patologicheskoy anatomii (zav. - prof. V.M. Konstantinov) Novosibirskogo meditsinskogo instituta (rektor - zasluzhennyy deyatel' nauki prof. G.D. Zalesskiy).

STRUSEVICH, M.A., kandidat tekhnicheskikh nauk; BESKROVNYY, I.G., kandidat tekhnicheskikh nauk.

Protective refractory coatings from Aktash aluminous rocks. Trudy Inst.energ. AN Uz.SSR no.4:83-99 '50. (MLRA 9:11)
(Refractory materials) (Protective coatings)

STRUSEVICH M.A DECEASED 1964

c. '62

Diesel Engines
fuel

130-1-1/16

AUTHOR: Markovich, G. A.

TITLE: New Successes in the Rubber Goods Industry. (Novyye uspekham promyshlennosti rezinovykh tekhnicheskikh izdeliy).

PERIODICAL: Kauchuk i Rezina, 1958, Nr.1. pp. 1 - 2 (USSR).

ABSTRACT: A meeting of the workers in the rubber goods industry, the Research Institute of Rezinoproyekt (Rezinoproyekt sovnarkhozov), and the Ministry for the Chemical Industry (Ministerstvo khimicheskoy promyshlennosti) was held in Moscow between 8th - 11th January, 1958. Plans for the development of the industry during 1958-1965, results of research work carried out during 1957 and questions of co-ordination and co-operation of Research Institutes and Engineering and Technical Plants were discussed. Papers were read by E. M. Rabkin, Chief Engineer of the Industry for Rubber Goods, MKHP and S. V. Burov and V. I. Novikov, Supervisors of NIIRP and NIIR. A. S. Novikov discussed new types of raw materials and polymers, S. E. Strusevich new textile materials of synthetic and artificial fibres, and A. S. Kuz'minskiy - radiation vulcanisation. The mechanisation and automation of the industry, new uses of synthetic materials etc.

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New Successes in the Rubber Goods Industry. 130-1-1/10

were discussed. In a number of factories vulcanisation presses were automised. The Research Institutes investigated continuous vulcanisation of rubberised fabrics by infra-red rays; the continuous production of rubber cords and tubes; a new machine for making moulded products; new active fillers (Ca silicates, calcium fluoride, precipitated activated chalk etc.).The quality of rubber goods (heat stability, frost resistance, resistance to wear and to deformation etc.) should be improved. It was recommended to start production of the following: accelerators and ultra-accelerators (dithiecarbamates), thiurams, xanthogenates, plasticizers, e,g. Renatsit 4 and 5, peptone 22, plasticizers for low-molecular polymers of the Hycar type (каучар V-10), coumarone-indene resins, anti-ageing agents, stable pigments and organic and inorganic dyes etc.

AVAILABLE: Library of Congress.

Card 2/2

IVANOV,A.; STRUSIEVICI,B.; LENGHEL,I.

Investigations concerning the efficiency of incubation at 43°C. of enrichment media for the isolation of Salmonella. Rumanian med. rev. 7 no.4:19-23 O-D'63.

*

[illegible], Dr; STRUSKIEVICZ, E., Dr and LENGHEL, [illegible]
[illegible] performed at the RPR Institute of Hygiene and Public [illegible] (Institutul de Igiena si Sanatate Publica RPR), [illegible] (Cluj) and at the Regional Sanepid [illegible], Cluj.

"Investigations of the Efficiency of Incubating Enriched [illegible] at [illegible] degrees Celsius with a View to the Isolation of Salmonella."

[illegible], *Microbiologia, Parazitologia, Epidemiologia*, Vol [illegible], No [illegible], Jan-Feb 1963, pp 61-68.

[illegible] (Authors' English summary modified): As part of a [illegible] the detection of Salmonella carriers during an [illegible] of paratyphoid B fever in an endemic typhoid-paratyphoid region, 575 coprocultures and 70 bile cultures were effected. Both the enriched Kaufmann-Mueller medium and [illegible] sodium selenite medium were incubated at

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RUMANIA

Bucharest, Microbiologia, Parazitologia, Epidemiologia, Vol 8, No 1, Jan-Feb 1963, pp 61-68.

39 degrees Celsius and also at 43 degrees Celsius. Incubation at 43 degrees led to a higher proportion of positive results for S. typhi, S. parathyphi B and other Salmonella; it had the same efficiency in the detection of Salmonella carriers among former typhoid and paratyphoid patients as incubation at 39 degrees. Parallel coprocultures and bile cultures are recommended, with incubation of the media at 37 degrees and 43 degrees Celsius.

Contains 3 tables and 7 references, of which 2 are Rumanian, 2 Russian, 2 British and 1 German.

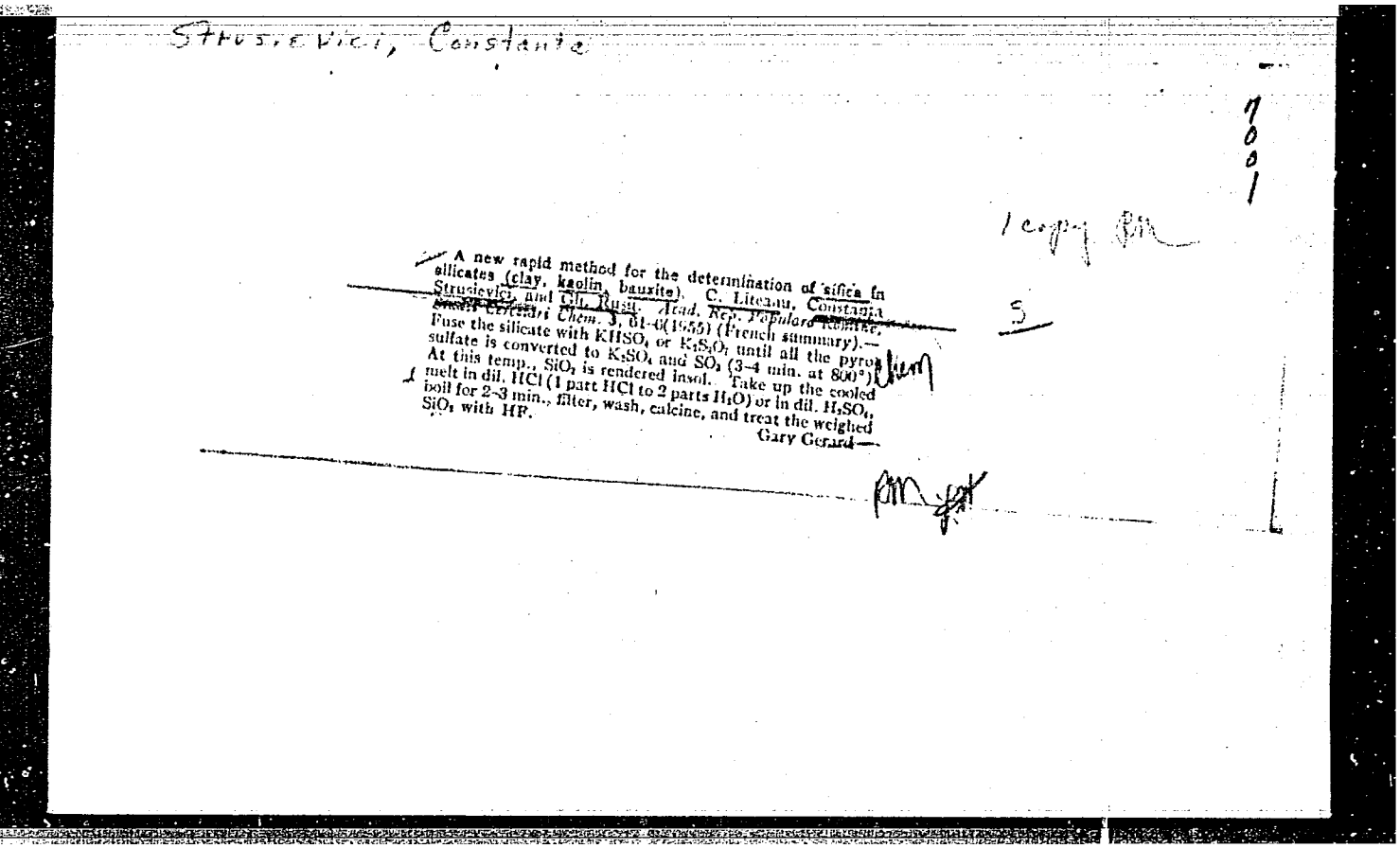
STRUSIEVICI, C.

4

Chem

2147. New method for the rapid estimation of silica by insolubilisation in glycerol. C. Liteanu, G. Ruau, and C. Strusievici. *Stud. Cercet. Chim., Bucharest*, 1955, 3 (1–2), 85–90. —After evaporating the melt from the alkaline fusion of the sample to dryness with conc. HCl, dehydration of the silica is completed by boiling for 5 min. with glycerol (150° to 170°). Water and a little conc. HCl are added, and the silica is filtered off, calcined and treated with HF. The whole analysis requires ≃2·5 hr. The results are in good agreement with those given by the methods employing gelatin or $HClO_4$, and the precision is greater.

J. H. Waton



Struscevici, Constantin

7001

1 copy

A new rapid method for the determination of silica in silicates (clay, kaolin, bauxite). C. Liteanu, Constantin Strusievici, and Cl. Rusu. *Acad. Rep. Populare Romîne, Filiala Cluj, Studii Cercetări Chem.* 3, 61-6(1955) (French summary).—Fuse the silicate with $KHSO_4$ or $K_2S_2O_7$ until all the pyrosulfate is converted to K_2SO_4 and SO_3 (3–4 min. at 800°). At this temp., SiO_2 is rendered insol. Take up the cooled melt in dil. HCl (1 part HCl to 2 parts H_2O) or in dil. H_2SO_4, boil for 2–3 min., filter, wash, calcine, and treat the weighed SiO_2 with HF.

Gary Gerard

A study of the thermal reactions between sodium metaphosphate and the sodium salts of some oxy-acids. I. C. Liteanu, I. Lukács, and C. Strusievici. *Acad. rep. populare Romîne, Filiala Cluj, Studii cercetări chim.* 9, 101–9(1958).—The successive formation of different possible compds. in thermal reactions in the system Na trimetaphosphate-Na_2CO_3 was studied. The mixts. trimetaphosphate-carbonate studied were in the following molar ratios: 3:1, 2:1, and 5:3 at 370° to 570°. In all cases, the Na triphosphate is formed as a primary compd. without any dependence of molar ratios and temp. The limiting factor of the reaction up to 520° is the rate of diffusion of the reacting substances through the layer of the primary compd. found. The proportion of the reacting substances acts on the course of the reaction probably by determining directly the max. rate of diffusion from the Na metaphosphate to the carbonate or reciprocally. At 570°, the reaction begins spontaneously in the whole mixt. by the formation of Na triphosphate even when the mixt. contains an excess of Na_2O. At the end of the reaction, the triphosphate is transformed into the compd. corresponding to the molar ratio of the reagents. C. Heitner-Wirguin

LUKACS, Ileana; LITEANU, C.; STRUSIEVICI, Constanta

About vanadates. Pt.4. Studii cerc chimie Cluj 14 no.2: 265-270 '63.

1. Institute of Chemistry, Rumanian Academy, Cluj Branch.

STRUSIEVICI, D.; LITEANU, C.; LUKACS, I.

Study of thermal reactions between sodium metaphosphate and the sodium salts of certain oxyacids. I. p. 101.

Academia Republicii Populare Romine. Filiala Cluj. STUDII SI CERCETARI DE CHIMIE. Cluj, Rumania. Vol. 9, no. 1/4, Jan./Dec. 1958.

Monthly List of East European Accessions (EEAI) Vol. 8, no. 7, July 1959.

Uncl.

STRUSINSKAYA, N. Ya.:

STRUSINSKAYA, N. Ya.: "Investigation of the properties of ceramic pressing powders and of the process of pressing electrical-insulating parts in a vacuum". Moscow, 1955. Min Higher Education USSR. Moscow Order of Lenin Chemicotechnological Inst imeni D. I. Mendeleyev. (Dissertations for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya letopis' No 44, 29 October 1955. Moscow.

SOV/112-57-5-9747

8 (0)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1957, Nr 5, p 13 (USSR)

AUTHOR: Avdeyev, A. V., Strusinskaya, N. Ya., Bogolepov, A. D.

TITLE: Use of Lower-Moisture-Content Masses in Manufacture of High-Voltage Porcelain Insulators (Ispol'zovaniye mass ponizhennoy vlazhnosti v proizvodstve vysokovol'tnykh farforovykh izolyatorov)

PERIODICAL: Tr. Gos. issled. elektrokeram. in-ta, 1956, Nr 1, pp 17-25

ABSTRACT: High-voltage insulators are usually formed from machine-turned billets, which are produced by extruding a porcelain mass with 21-22% moisture content from a vacuum press, and subsequently air-drying the billets down to a 17.5-18.5% moisture content. Natural air-drying of billets takes considerable time; rapid artificial air-drying requires specialized equipment. As a result of investigations conducted at GIEKI, a possibility of manufacturing insulators from masses with a lower (18.0-18.5%) moisture content was proved, and air-drying of insulator billets was eliminated. A number of problems had to be solved; a uniform-moisture-content porcelain mass had to

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Use of Lower-Moisture-Content Masses in Manufacture of High-Voltage . . . .

be produced by filter-presses; vacuum presses had to be modernized. The investigations have shown that with an increase in the filter-pressing time, the moisture content of the mass pancake decreases to a definite limit; increase in the pancake thickness from 15 mm to 35 mm did not materially affect its moisture content. Dross heating tends to accelerate filter-pressing, but has no influence on the final moisture content of the pancake. At the factory, filter-pressing (dehydration) of the porcelain mass down to 18% moisture content was formerly done at 15 atm pressure and 40°C dross temperature. To protect filter-press cloth, perforated disks were placed on the shields, and rubber gasket rings were placed around their circumference. A crankshaft-type vacuum press was used for extruding billets from the mass with moisture content of 18.0-18.5%; the press functioning was unstable. To ensure its normal operation, the vacuum press was modernized by substituting a continuous screw conveyer for an intermittent-type conveyer and by mounting a feed roll in the receiving box. To reduce the mass-passage resistance, the

Use of Lower-Moisture-Content Masses in Manufacture of High-Voltage . . . .

distance between the last conveyer convolution and the perforated screen was shortened from 140 mm to 70 mm by elongating the screw conveyer and enlarging the working cross-section of the perforated screen from 43.5 to 83.0 cm^2, while decreasing the total perimeter of holes in the screen 1.3 times. The lower part of the vacuum-press body formerly had gotten warm from the rotation of the extruding mass; this phenomenon was eliminated by slotting additional grooves in the internal surface of the body, which resulted in a 2.6-time increase of the total area of the grooves. Rpms of the screw conveyers were halved. The above measures permitted processing the porcelain mass with 18.3-18.5% moisture content under stable operating conditions of the vacuum press. The mass heating in the vacuum press proved to be negligible (12°C), and billets of satisfactory quality. Fired insulators, manufactured from the above billets, have a compact body and stand up well under electric tests. At present, one of (Soviet) insulator factories has organized production of bushing and supporting insulators of various shapes and sizes according to the above new processing methods.

N.V.N.

Card 3/3

STRUSINSKI, H.

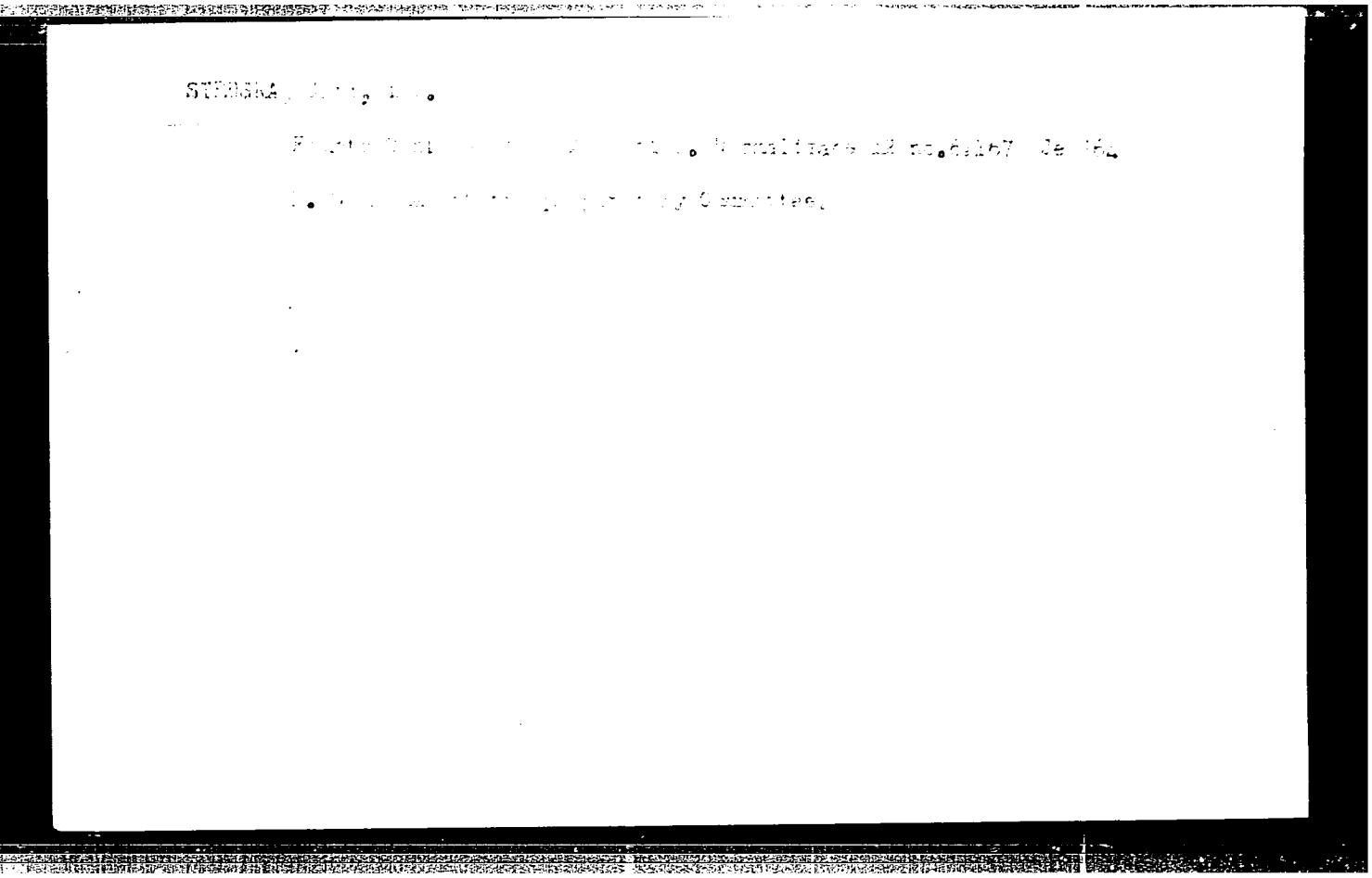
"The results of the contest for a tachymeter." p. 55
"Computing the resection with a double calculating machine." p. 57
(Przeglad Geodezyjny, Vol 9, N o 2, Feb 1953, Warszawa)

SO: Monthly List of East European Accessions, Vol 2, No 9 Sept 53 Library of Congress [redacted] Uncl

STRUSINSKI, H.

"A compensation love, a novelty in construction principles", p. 230, (PRZEGLAND BUDOWLANY, Vol. 9, No. 8, August, 1953, Warszawa, Poland)

SO: Monthly List of East European Accessions, L.C., Vol. 3, No. 4, April, 1954



L 5024-66 EWT(1)/EPA(s)-2

ACCESSION NR: AP5024579 UR/0292/65/000/009/0027/0031 42 B
621.313.33.001.4

AUTHOR: Chertok, B. N. 44,55 (Engineer); Zinchenko, V. G. 44,55 (Engineer); Strusovskaya, M. I. 44,55 (Engineer); Kharabash, P. N. 44,55

TITLE: Investigation of the effect of partial insulation around the cast squirrel cage of a rotor

SOURCE: Elektrotekhnika, no. 9, 1965, 27-31

TOPIC TAGS: induction motor 27,44,55

ABSTRACT: The results of an experimental investigation of the squirrel-cage rotor-core insulation and its effect on the induction-motor performance are reported. The aluminum-phosphate coating of the core was found to be the best. This coating proved to be able to withstand 550C continuously and, when applied to the NaOH-etched core surface, ensured a contact resistance about 10--30 ohm-mm^2. The effect of this "partial" insulation was investigated by comparing the performance of standard and experimental rotors in the same stator of a KOM31-4 induction motor; the experimental rotors had skewed slots. It was found that the reduction of the motor losses, thanks to the introduction of the rotor insulation, resulted in

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ACCESSION NR: AP5024579

lowering the stator-winding temperature by 12C and enhancing the motor efficiency by 2.5--3%; also the motor minimum and maximum torques increased by 5 and 12%, respectively. Orig. art. has: 2 figures, 9 formulas, and 3 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: EE

NO REF SOV: 005 OTHER: 002

Card 2/2

STRUSZYNSKI, J.

000. Continuous colorimetric determination of small amounts of oxygen in ethylene. M. Struszynski, L. Minczewski, S. Waszak and J. Wachawik (*Przem. Chem.*, 1953, 32 [10], 449–457).— L. J. Brady's method (*Brit. Abstr. C*, 1949, 203), which is based on the change of colour of an alkaline soln. of reduced sodium anthraquinone-β-sulphonate by oxygen, has been modified and adapted for continuous recording of oxygen contents from 0·002 to 0·02 per cent. in C_2H_4, with an absolute error of ± 0·0005 per cent. The range of measurements can be extended to 0·1 per cent. by adjusting concn. of the reagent, diameter of capillary and flow of C_2H_4. The prep. of reagents, assembly and calibration of the apparatus and the procedure are described in detail. Diagrammatic sketches, calibration curves and a survey of literature are presented.

H. BURSTIN

Analytical Abst.
May 1954
Organic Analysis

STRUSZYNSKI MARCELI PROF. DECEASED

d. 1880-1959

SEE ILC

ANALYTIC CHEMISTRY

STRUSZYNSKI, M.

Struszyński M., Marczenko Z., Nowicka T. **Photocolorimetric Determination of Iron, Using α, α' — Dipyridyl.**

„Fotokolorymetryczne oznaczanie żelaza za pomocą α, α' — dwupirydylu". Przemysł Chemiczny, No. 6, 1953, pp. 293—297, 3 figs., 2 tabs.

A photocolorimetric method of determining, using α, α' — dipyridyl, small quantities of iron has been worked out. The optic-analytical properties of ferrous dipyridyl complex were investigated and compared with the corresponding properties in ferric thiocyanate complex. The influence on the method of pH, time, of the presence of foreign ions and of the temperature are given, together with the application of the method. The method is particularly useful for determination of Fe^{++} besides Fe^{+++}.

STRUSZYNSKI, M

2999

546.57.04 : 515.81-1

Struszyński M., Nowicka T., Marczenko Z. The Photocolorimetric Determination of Silver with p-Dimethylaminobenzylidenerhodanine.

„Fotokolorymetryczne oznaczanie srebra za pomocą p-dwumetyloaminobenzylidenorodaniny". Przemysł Chemiczny. No. 11, 1953, pp. 574—578, 3 figs., 4 tabs.

Description of a photocolorimetric method of determining traces of silver in ores by using p-dimethylaminobenzylidenerhodanine in acid medium. The influence of parameters (such as pH, the composition of solutions, time, temperature and protective colloids) on the course of the determination was investigated. The necessity of eliminating chlorides from the samples tested and of using redistilled water is stressed.

STRUSZYNSKI, N.

Pol.

Struszyński N., Bellen Z. Determination of Quinolinic Acid in Crude Quinolinic Acid.

„Oznaczanie kwasu chinolinowego w surowym kwasie chinolinowym". Przemysł Chmiczny. No. 7, 1953, pp. 371—372, 2 tabs.

A method is elaborated of determining quinolinic acid in crude quinolinic acid obtained by catalytic oxidation of quinoline. The method consists in gravimetric determination of quinolinic acid as an internal complex compound with copper.

(1)

GOLDSTEIN, I.; KAHAN, A.; COTARCEA, S.; SEGALL, A.; BUCUR, M.; ROSIANU, C.; SOLOMON, E.; WEISER, C.; GROZA, M.; STRUTENSCHI, T.

Problem of early diagnosis in rheumatic diseases; changes in the leukogram and V.S.H. after intradermal injection of streptococcic antigen. Probl. reumat.,Bucur. 4:213-220 1956.

(RHEUMATISM, diagnosis
early diag., intredermal test with streptoc. antigen)
(LEUKOCYTE COUNT, in various dis.
rheum. dis., eff. of inject. of streptoc. antigen, diag. value of determ.)
(ANTIGENS
streptoc. antigen. inject. in early diag. of rheum. dis., mechanism of action)

LUPOLOVER, A.M.; PAL', M.M.; STRUTINA, S.Z.

Conducting mass examination of the population in city medical centers. Sov.zdrav. 18 no.12:6-9 '59. (MIRA 13:4)

1. Iz klinicheskoy bol'nitsy (glavnyy vrach Yu.N. Gordon) TSentral'nogo rayona Odessy.
(PREVENTIVE MEDICINE)

STRUTINSKIY, A.B., inzhener; LABINOV, D.S., inzhener

Mobile construction unit. Stroi. prom. 33 no.4:21-22 Ap '55.
(Building) (MLRA 8:6)

STRUTINSKIY, Aleksey Bonifat'yevich; ZASLAVSKAYA, T., red.; IOAKIMIS, A., tekhn.red.

[Prefebricated elements of frameless, panel-constructed apartment houses] Sbornye konstruktsii panel'nykh beskarkasnykh zhilykh domov. Kiev. Gos.izd-vo lit-ry po stroit. i arkhit. USSSR, 1956. 87 p. (MIRA 11:2)
(Apartment houses)
(Precast concrete)

TRUTINSKIY, Aleksey Bonifat'yevich; KNYAZEVISKIY, P., redaktor; IOAKIMIS, A., tekhnicheskiy redaktor

[Means and methods of standardizing the construction of apartment houses] Puti i metody tipizatsii konstruktsii zhilykh domov. Kiev, Gos.izd-vo lit-ry po stroit. i arkhit. USSR, 1957. 89 p. (MLRA 10:9)
(Apartment houses)

STRUTINSKIY, Aleksey Bonifat'yevich, inzh.; TRET'YAKOV, Lev Dmitriyevich, kand.tekhn.nauk; TSEYTLIN, Aleksandr Aleksandrovich, kand.tekhn. nauk; VOLYANSKIY, A., red.; KUL'CHITSKAYA, O., red.; IOAKIMIS, A., tekhn.red.; PISENKO, A., tekhn.red.

[Builder's handbook] Spravochnik mastera-stroitelia. Kiev, Gos. izd-vo lit-ry po stroit. i arkhit., 1957. 340 p. (MIRA 11:3)
(Building)

STRUTINSKIY, A.V., inzh.

Experience in designing standard apartment houses using precast structural components. Nov.v stroi.tekh. no.11:30-34 '57. (MIRA 10:12)

1. Giprograzhdanpromstroy.
(Ukraine--Apartment houses)

STRUTINSKIY, A., inzh.

Construction of large-panel apartment houses on settling soil.
Zhil. stroi. no.12:18-19 '61. (MIRA 15:2)
(Ukraine--Foundations)

L 10832-65 EWT(d) T/[illegible](c)/ESD(dp)

ACCESSION NR: AP4046112 S/0302/64/000/003/0033/0034

AUTHOR: Strutinskiy, A. N.

TITLE: Development of digital automata for controlling the parameters of product on the basis of the theory of synthesis of discrete automata (B)

SOURCE: Avtomatika i priborostroyeniye, no. 3, 1964, 33-34

TOPIC TAGS: automaton, digital automaton, product control automaton, discrete automaton

ABSTRACT: Intended for industrial-process automation, a digital automaton is considered whose algorithm is developed according to specifications for the product. The automaton uses standard computer parts ("Kiev" or "Dnepr") and most of its units remain suitable when the product type or specification is changed. The principal units of the automaton are: a pulse generator (1 kc), a delay circuit, a counter, an input unit for storing production-output info, an

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ACCESSION NR: AP4046112

output unit for shaping signals sent into two production channels, a period indicant circuit, an indicator, a voltage switch, a blocking oscillator for self-checking, a logical circuit for handling Boolean functions. The automaton is claimed to have 2^{45} internal states. Only a block diagram and a very general description are presented. Orig. art. has: 3 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: IE NO REF SOV: 000 OTHER: 000

Card 2/2

STRUTINSKIY, I.

In the Sverdlovsk school for motion-picture operators. Kinomekhanik no.8:12 Ag '53. (MLRA 6:8)

(Moving-picture projection--Study and teaching)

STRUTINSKIY, I.

The 100th graduating class. Kinomekhanik no.10:8-9 O '53. (MLRA 6:10)
(White Russia--Moving-picture projection) (Moving-picture projection--White Russia)

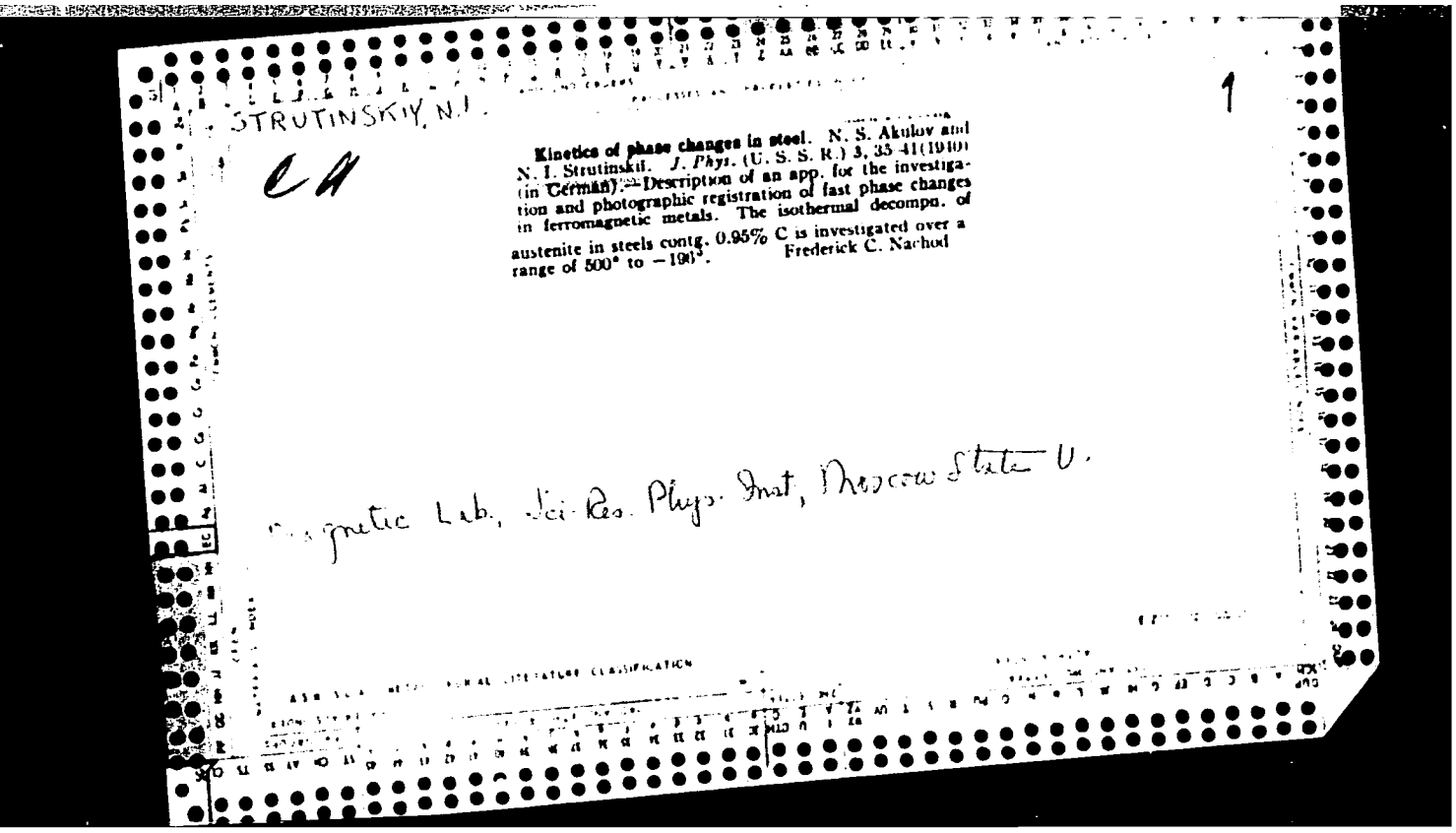
STRUTINSKIY, L.A.

Proportioning the clay components of porcelain paste by volume. (MIRA 15:3)
Stek. i ker. 19 no.2:38-40 F '62.
(Ceramics)

SYROTIN, M.I.

Thyroid function in pulmonary tuberculosis and its modification during the course of antibacterial therapy. Probl. tub. no.4 52-57 '64. (MIRA 18:11)

1. Kafedra fakul'tetskoy terapii (zav. - prof. M.I. Avtsyn) Immunoterapevticheskogo meditsinskogo instituta.



STRUTINSKIY, N.I.

CA

1

Kinetics of phase changes in steel. N. S. Akulov and N. I. Strutinskii. *J. Phys.* (U. S. S. R.) 3, 35-41 (1940) (in German).—Description of an app. for the investigation and photographic registration of fast phase changes in ferromagnetic metals. The isothermal decompn. of austenite in steels contg. 0.95% C is investigated over a range of 500° to −190°. Frederick C. Nachod

Magnetic Lab., Sci. Res. Phys. Inst., Moscow State U.

USSR/Radiophysics - Superhigh Frequencies, I-11

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35430

Author: Strutinskiy, N. I.

Institution: None

Title: Concerning a Graphical Method of Analyzing a Waveguide Junction with Two Outlets

Original Periodical: Tr. n.-i in-ta. M-vo radiotekhn. prom-sti SSSR, 1955, No 6 (26), 3-16

Abstract: A graphic method is proposed for the analysis of a waveguide junction with 2 outlets, the method being a variant of the Deshan method and making it possible to determine the scattering matrix from the data on the measurement of the standing waves. The difference from the Deshan method lies in introducing and using a protocenter -- a point on the reflection-coefficient complex plane. Any bilinear transformation maps the protocenter into the center of the circle that forms the image of the unit circle. By first construction of

Card 1/2

USSR/Radiophysics - Superhigh Frequencies, I-11

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35430

Abstract: the protocenter, the theory of the method acquires the advantage of great obviousness. An example is given, showing the practical advantages of the graphical method compared with analytic computations.

Card 2/2

Category : USSR/Radiophysics - Radiation of radio waves. Antennas

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1876

Author : Turover, Ya. M., Strutinskiy, N.I.
Title : Use of Chebyshev Polynomials for the Design of Stepped Transitions

Orig Pub : Radiotekhn. i elektronika, 1956, 1, No 2, 143-161

Abstract : A method is proposed, by which stepped transitions in transmission lines are solved by using Chebyshev polynomials of the first kind. The advantage of stepped transitions, calculated in this manner, is the greater transition gain and a smoother transition for a specified transition length and for a specified overlap coefficient compared with the stepped transitions known as "binomial." The calculation method presented neglects local waves at the joints between steps and disregards multiple reflections. Only the theory of the method is covered and is illustrated by many graphs and by some numerical examples; brief information on the Chebyshev polynomials of the first kind is also given.

Card : 1/1

STRUTINSKIY, O. [Strutyns'kyi, O.], inzh.

Designing and building prefabricated large-panel apartment houses.
Proek. i bud. 1 no.1:14-21 O '59. (MIRA 13:12)
(Ukraine--Apartment houses)

REZNIKOV, A.D.; LYANDRES, S.N., kand. tekhn. nauk; KHAR'KOV, L.A.; Prinimali uchastiye: ZHIRNYY, A.Ye.; STRUTINSKIY, V.I.; PERETOLCHIN, I.P.

Study of electrical linking of boreholes in the Angren Station "Podzemgaz." Nauch. trudy VNIIPodzemgaza no.9:80-85 '63. (MIRA 16:11)

1. Laboratoriya teplotekhniki i energetiki Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley (for Reznikov, Lyandres, Khar'kov). 2. Sotrudniki Angrenskoy stantsii "Podzemgaz" (for Zhirnyy, Strutinskiy, Peretolchin).

STRUTINSKIY, V.M.

Nuc Sci

Correlation phenomena in α-decomposition. V. M. Strutinskiĭ. *Doklady Akad. Nauk S.S.S.R.* 104, 524–6 (1955).—Quant. calcns. are given to verify the relation between the angular correlation of α-particles with the following γ-quanta and the sign of the quadrupole moment for the nucleus. The exptl. data indicate a pos. moment for the Np^{237} nucleus with a spin of 5/2 and for the Am^{241} nucleus in the ground state. —I. Rovtar Leach

STRUTINSKIY, V. M.

"Theoretical Interpretation of Fission Anisotropy on the Basis of the General Law of Conservat on of Momentum", a report presented at the Conference on the Physics of Nuclear Fission, 19-21 January 1956, Atom Energ., No. 1, 1956.

STRUTINSKIY, V.M.

CARD 1 / 2 PA - 1524

SUBJECT USSR / PHYSICS
AUTHOR STRUTINSKIJ,V.M.
TITLE On Mirror-Asymmetric Nuclei.
PERIODICAL Atomnaja Energija, 1, fasc. 4, 150-154 (1956)
Issued: 19.10.1956

The present work investigates one of the possible causes of the mirror-asymmetry of nuclei and the problem of the intensity of electric transitions in mirror-asymmetric nuclei.

The stability of the mirror-asymmetric shape of the nuclear surface: For the purpose of establishing a criterion for this stability the case of a very small asymmetric deformation is investigated first, on which occasion it is possible to use the perturbation theory. To begin with, expressions for the modification of nucleon energy, of COULOMB energy, and of surface energy are given. If asymmetric deformation is sufficiently great, the energy of the nucleus continues to increase. However, the parameter of asymmetric deformation corresponding to the asymmetric form of equilibrium of the nucleus cannot be determined within the framework of the perturbation theory. The case of two closely adjoining levels can be treated in a similar way to that employed for overlapping terms in the theory of molecules. The nucleus can have a marked asymmetry only if the distance between the nuclear levels is considerably smaller than $2|M_{ab}|^2/C_\xi$. Here $\xi M_{ab} = V_{ab}$ denotes the matrix element of the disturbance. (ξ is a small dimensionless parameter which characterizes

asymmetric deformation). C_f denotes the "droplet coefficient" of the deformability of the nucleus. The instability of the symmetric shape of the nucleus on the occasion of the approach of nucleons may perhaps be one of the factors which facilitate asymmetric fission, for, on the occasion of the deformation of the nucleus by fissioning the nucleon terms may, with great probability, overlap.

The collective electric transitions in mirror-asymmetric nuclei: A collective dipole transition is possible only if the centers of mass of the protons and of the nucleus are not identical. Such a polarization of the nucleus may occur in an asymmetrically deformed nucleus as the result of the existence of an interior electric field. By basing upon these considerations the dipole moment of a mirror-asymmetric nucleus in then evaluated.

Polarization of the nucleus as the result of asymmetric polarization can be of importance only in strongly deformed nuclei if symmetric quadrupole-like deformation is not very small. In the case of nuclei with $A \sim 240$ and $Z \sim 90$ $0,1\ R_o$ is obtained for the dipole moment of the nucleus. The collective dipole transition must then be of an intensity that is a hundred times lower than that of one-frequency dipole transition with the same energy.

INSTITUTION:

STRUTINSKIY, V. M.

USSR/Nuclear Physics - Structure and Properties of Nuclei C-4

Abst Journal : Referat Zhur - Fizika, No 12, 1956, 33981

Author : Strutinskiy, V. M.

Institution : None

Title : On the Theory of Alpha-Decay of Nonspherical Nuclei

Original Periodical : Zh. eksperim. i teor. fiziki, 1956, 30, No 2, 411-412

Abstract : It is indicated that the problem of the α-decay of a deformed nucleus simplifies considerably in the case when the decaying nucleus has zero spin (even-even nuclei). The Schroedinger equation and the Hamilton-Jacobi equation which describes the system in quasi-classical approximation, are written down for zero spin. The value of the nonadiabatic correction, necessitated by the rotation of the nucleus as a whole, is estimated. This correction turns out to be substantial in practical cases. A report

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Abst Journal : Referat Zhur - Fizika, No 12, 1956, 33981

was issued on the result of calculations of the angular dependence of the wave function made in collaboration with G. A. Pik-Pichak. As a result of the nonadibatic rotation of the nucleus the width of the angular distribution of the α particle on the surface of the emergence from under the barrier is quite large (60 to 80°) and depends little on the deformation of the nucleus. An equally weak dependence is shown by the deformation of the nucleus and by the distribution of the intensities for lines of the fine structures in the α spectrum caused by the rotational state.

STRUTINSKIY, V. M.

USSR/Nuclear Physics - Nuclear Reactions, C-5

Abst Journal: Referat Zhur - Fizika, No 12 1956, 34 61

Author: Strutinskiy V. M.

Institution: None

Title: On the Angular Distribution of Fission Fragments

Original Periodical: Zh. eksperim. i teor. fiziki, 1956, 30, No 3, 606-608

Abstract: It is shown that the general properties of the angular distribution of fission fragments caused by nucleons or gamma quanta, can be explained on the basis of the law of conservation of the angular momentum. For quantitative analysis, the general expressions for the angular distribution of the fragments are transformed to a form that contains explicitly the distribution of the projections of the spins of the fragments on the direction of the escape of the fragments. In the adiabatic approximation this quantity is an integral of the motion, and consequently characterizes the internal state of the fissioning nucleus. The theory is compared with the experimental angular distribution of the fragments of photofission of Th^{232} (a dipole fission mechanism is assumed). From this point of view, at the same degree of orientation, a large internal excitation of the nucleus during the fission product

USSR/Nuclear Physics - Nuclear Reactions, C-5

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34061

Author: Strutinskiy, V. M.

Institution: None

Title: On the Angular Distribution of Fission Fragments

Original Periodical: Zh. eksperim. i teor. fiziki, 1956, 30, No 3, 606-608

Abstract: should correspond to a more isotropic distribution of the fragments. The experimentally observed relationship between the anisotropic and asymmetry of the fission indicates possibly the fact that a symmetrical fission occurs at large internal excitation of the nucleus in the saddle point. It is noted that the exclusion of the symmetrical fission with the spin projection that equals zero at odd spin does not play a substantial role.

AUTHOR STRUTINSKII, V. M.

TITLE On the Statistical Theory of the Angular Distribution of Fission Fragments.
(Statisticheskaya teoriya uglovogo raspredeleniya oskolkov deleniya Russian)

PERIODICAL Atomnaya Energiya, 1957, Vol 2, Nr 6, pp 508-513 (U.S.S.R.)

ABSTRACT The author investigates this angular distribution in the case of sufficiently intense excitation, if the moment of the amount is distributed to many nucleons and if the statistical theory is applicable to the nucleus. Some previous works dealing with this problem are discussed in short. The author here confines himself to the following case: The target-nucleus is even-even or has a spin which is small compared to the orbital moment of the impinging particle. The larger the spin of the target nucleus, the more isotropic is the angular distribution of the fragments. In the case of a vanishing or smaller spin of the target nucleus the angular momentum of the compound nucleus may be equal to the orbital moment of the neutron and may be orientated vertical to the neutron bundle. At first the distribution of the states of the "transition nucleus" with respect to the amount K of the projection of the angular momentum of the compound nucleus on the fission axis is computed. The most probable is the state with K = 0, and in the case of fission caused by neutrons this leads to the occurrence of maxima in the angular distribution of the fragments in the case of

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On the Statistical Theory of the Angular Distribution of Fission Fragments

the angles 0° and 180°. These results are compared with the experiment and the moment of inertia of the "transition nucleus" with respect to the symmetry axis (direction of fission) is determined on this occasion. Also the angular distribution of the fragments is investigated which are produced on the occasion of the fission of the charged particles and γ quanta. It may, however, (instead of the model of the "transition nucleus" also be assumed that the anisotropy of the angular distribution is connected with the dependence of the density of the level of the fragments on the amount of their spins.
(3 illustrations).

ASSOCIATION Not Given.
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SUBMITTED 27 Jan 1956
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Card 2/2

STRUTINSKIY, V. M. (USSR Acad. Sci.)

"Statistical Theory of Angular Distribution of Fission Fragments,"

paper submitted at the All-U Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 17-27 Nov 57.

AUTHOR STRUTINSKIY, V.M. 56-6-18/56

TITLE Excitation of Rotational States in α-Decay of Even-Even Nuclei. (Vozbuzhdeniye rotatsionnykh sostoyaniy pri α-raspade chetno-chetno yader. Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 6, pp 1412 - 1420 (U.S.S.R.)

ABSTRACT The present paper computes the relative excitation probability of rotational states on the occasion of the α-decay of deformed even-even nuclei. The angular dependence of the wave function at great distances from the nucleus is essentially determined by the anisotropy of COULOMB'S potential barrier as well as by the rotation effects of the nucleus and the centrifugal forces. Nuclear interaction manifests itself in form of unknown boundary conditions on the nuclear surface, by which the distribution of the intensities in the α-spectrum is comparatively only little influenced. The author here develops the wave function in the domain outside the nucleus in a quasiclassical series. The course of computations is followed step by step. Computations were carried out with the electronic computor M-2, i.e. the corresponding equations were solved with variable step width. For a flattened nucleus a considerably lower transition probability in the state 2+ is obtained than for an oblong nucleus. The data on the intensity distribution in the α-spectrum exclude the hypothesis of the flattening of the nucleus. Only those nuclei form an

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56-6-18/56

Excitation of Rotational States in α-Decay of Even-Even Nuclei

exception for which the probability of transition into the state 2+ is relatively low. (Isotopes Rn, Cm, Cf). In general the deformation of the nucleus can be determined also from the data on the absolute probability of the α-decay. Also the dependence of the wave function on the boundary condition upon the surface of the nucleus and the minimum angular width of the wave function is computed. (With 2 illustrations and 1 table).

ASSOCIATION Not given
PRESENTED BY
SUBMITTED 10.8.1956
AVAILABLE Library of Congress

Card 2/2

STRUTINSKIY, V. .

"Angular Distribution in Particle Induced Fission at Medium Energies" (a paper to be presented at 1958 UN "Atoms-for-Peace" Conference, Geneva).

STRUTINSKIY, V. M., Candidate Phys-Math Sci (diss) -- "On the fine structure of alpha-decomposition". Moscow, 1959. 8 pp (Min Higher Educ USSR, Moscow Engineering Phys Inst), 100 copies (KL, No 23, 1959, 160)

21 (8)

AUTHOR: Strutinskiy, V. M. SOV/56-36-6-65/66

TITLE: Correction to the Article by V. M. Strutinskiy "Excitation of Rotational States in the α-Decay of Even-even Nuclei" (Popravka k stat'ye V. M. Strutinskogo "Vozbuzhdeniye rotatsionnykh sostoyaniy pri α-raspade chetno-chetnykh yader")

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 6, p 1957 (USSR)

ABSTRACT: When calculating the deformation parameters of even-even nuclei in the paper reference 1 (Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1957, Vol 32, p 1412) the author used inaccurate values obtained from a paper by Gol'din et al. (Ref 2). Calculation carried out on the basis of better data and a comparison with values obtained by other authors (as e.g. Gol'din and Ter-Martirosyan (Ref 5)) shows that the deviations amount to not more than 10%. There are 5 references, 3 of which are Soviet.

SUBMITTED: May 6, 1959

Card 1/1

21 (7)

AUTHOR: Strutinskiy, V. M. SOV/56-37-3-46/62

TITLE: On the Angular Anisotropy of γ-Quanta Accompanying Fission

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 3(9), pp 861 - 863 (USSR)

ABSTRACT: By way of introduction the present "Letter to the Editor" discusses the results obtained by investigations carried out by a number of other authors, especially those taken from the Geneva Papers P/665 and P/2467 (Leachman). Only a short time ago it was found that the γ-quanta accompanying the fission of nuclei have an anisotropy with respect to the direction of flight of the fragments. By using the results obtained by Berestetskiy and Akhiyezer (Ref 7) several formulas are given for the probability of the emission of a photon under the angle θ with respect to the direction $\vec{j}$. The probability of the emission of a quantum with the momentum L is proportional to $\exp\left\{-\hbar^2(\vec{J}-\vec{L})^2/2JT\right\} \sim \exp\left\{-\hbar^2 jM/JT\right\}$, where J is the moment of inertia, T - the temperature, $\vec{j}$ - the initial momentum of the fragment, M - the projection of the photon momentum on to the $\vec{j}$-direction. For the emission probability of a photon under θ

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On the Angular Anisotropy of γ-Quanta Accompanying Fission SOV/56-37-3-46/62

$W_{\vec{j}}^{(L)}(\theta) = \sum_{M=-L}^{L} \exp\left\{-\hbar^2 jM/JT\right\} \left|\vec{Y}_{LM}^{(\lambda)}(\theta)\right|^2$ holds, where $\vec{Y}_{LM}^{(\lambda)}$ is a vectorial spherical harmonic. If the exponent is expanded into a series, $W_{\vec{j}}^{(L)}(\theta) \approx 1 + \frac{1}{2}(\hbar^2 j/JT)^2 \sum_{M=-L}^{L} M^2 \left|\vec{Y}_{LM}^{(\lambda)}(\theta)\right|^2$ is obtained. After summation with respect to M the approximation formula $W_{\gamma}^{(L)}(\vartheta) = 1 + k_L(\hbar^2 j/JT)^2 \sin^2\vartheta$, where $\sin^2\vartheta = 2\cos^2\theta$. The coefficient k_L is for L = 1 equal to +1/8, for L = 2: -3/8, for L = 3: -81/64. At j = 10, T = 1 Mev, $J = \frac{2}{5}AmR^2$, A = 100 the anisotropy of the γ-quanta is $\sim$ -1% for dipole radiation and +2-3% for quadrupole radiation. The anisotropy is possibly due to the γ-transitions between the low levels of the fragments - a theory, which is finally discussed. The author thanks B. T. Geylikman, S. T. Belyayev, and G. A. Pik-Pichak for discussions. There are 7 references, 3 of which are Soviet.

SUBMITTED: May 26, 1959

Card 2/2

ADAMCHUK, Yu.V.; STRUTINSKIY, V.M.

[Radiation widths of nuclei and statistical theory] Radiatsionnye shiriny iader i statisticheskaia teoriia. Moskva, In-t atomnoi energii im. I.V.Kurchatova, 1960. 49 p. (MIRA 16:12)

(Nuclei, Atomic)

STRUTINSKIY, V.M.

Excitation of vibrational levels and Coulomb excitation in α-decay. Zhur. eksp. i teor. fiz. 38 no.1:122-133 Jan '60. (MIRA 14:9)
(Alpha rays--Decay) (Nuclei, Atomic)

STRUTINSKIY, V.M.; GROSHEV, L.V.; AKIMOVA, M.K.

Spectra of gamma rays produced in the capture of thermal neutrons by heavy nuclei. Part 2. Zhur.eksp.i teor.fiz. 38 no.2:598-611 F '60. (MIRA 14:5)

(Gamma rays) (Neutrons--Capture)

83773

S/056/60/039/003/031/045
B006/B063

24.6600

AUTHOR: Strutinskiy, V. M.

TITLE: Angular Distribution of Fission Fragments Produced by Low-energy Neutrons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3(9), pp. 781-793

TEXT: Experimental data available on fission fragment distribution concern, for the greater part, fissions induced by high-energy particles. In this case the statistical theory of angular anisotropy agrees with the experiment even quantitatively. The author of the present paper wanted to study the angular distribution for a transition nucleus (deformed nucleus undergoing fission) in the range of low excitation energies, i.e., for small orbital momenta of the captured particles. This investigation yields data on the fission probability as a function of K (K - projection of the spin of the transition nucleus onto the fission direction) and, hence, on the level distribution with respect to K of the transition nucleus at low excitations. If the transition nucleus is an even-even

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nucleus, the fragment angular distribution gives additional evidence of the existence of an energy gap in the level spectrum of the transition nucleus and of the existence of rotational levels within the gap. Still, the theory of the angular distribution of fission fragments needs being improved, and the importance of the initial nuclear spin must be recognized in the first place. The distribution function

$W(\vartheta) = \sum_l \xi_l \sum_{S=I_t \pm 1/2} W_{lS}(\vartheta)$, where $W_{lS}(\vartheta)$ is the angular distribution for the channel (l,S), yields the approximate equation

$W(\vartheta) \approx \text{const} \cdot \left\{1 + (\overline{l^2}/4K_0^2)\sin^2\vartheta\right\}$, where $\overline{l^2} = \left\{\sum_l (2l+1)\xi_l(l+1)\right\}\left\{\sum_l (2l+1)\xi_l\right\}^{-1}$;

$\overline{l^2}$ is the mean square of the orbital momentum; for a nucleus with $A \sim 240$ undergoing a neutron-induced fission, $\overline{l^2} \approx (2.5 \div 3)E_n[\text{Mev}]$; $\xi_l \approx \xi_{lSJ}$ is the absorption coefficient. In the classical limiting case $(l,S \gg 1)$, $W(\vec{n}) = \text{const} \cdot a(K)\Big|_{K=\vec{J}\vec{n}}$, and for $a(K) \approx 1 + \alpha K^4$ one obtains

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Angular Distribution of Fission Fragments Produced by Low energy Neutrons

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B006/B063

$W(\vartheta) = \text{const} \cdot \left\{ \ldots - \kappa\left(\frac{3}{8}\sqrt{1}\sin^4\vartheta + S^2\sqrt{1}\sin^2\vartheta\right)\right\}$. The next section deals with the determination of the distribution a(K) from a known angular distribution of fragments. The case K=0 is first discussed, after which other fixed |K| values are considered. $W_{1S}(\vartheta)$ is expressed by the functions $F_{1S}(\vartheta)$ and $F_{1\lambda}(\vartheta)$, respectively. Furthermore, $\Phi_{1\lambda}(\vartheta)$ $= F_{1,\lambda-1}(\vartheta) + F_{1\lambda}(\vartheta) - F_{1,\lambda-1}(90^\circ) - F_{1,\lambda}(90^\circ)$; the function $\Phi_{1\lambda}(\vartheta)$ is tabulated. Then, the author studies the effect of fluctuations of the level distribution of a transition nucleus upon the angular distribution of fission fragments. A number of special cases (bombardment of a nucleus with neutrons) is discussed, and the results of various theoretical methods are compared. For example, Fig. 2 shows the angular fragment distribution of the 1.6-Mev neutron-induced Th^{232} fission from both experiment and theory (for K = 3/2, semitransparent nucleus; "optimum" distribution with K = 3/2 calculated by the method of least squares and according to the optical model with K = 5/2). Results are finally discussed. The author thanks B. T. Geylikman, D. P. Grechukhin, and G. A. Pik-Pichak for discussions. P. E. Nemirovskiy is mentioned. There are

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83773

Angular Distribution of Fission Fragments Produced by Low-energy Neutrons

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B006/B063

3 figures, 1 table, and 14 references: 5 Soviet, 6 US, and 2 Swiss.

SUBMITTED: April 16, 1960

Card 4/4

BAZ', A.I.; STRUTINSKIY, V.M.

From the materials of the Kingston conference on nuclear structure.
Atom.energ. 10 no.4:404-409 Ap '61. (MIRA 14:4)
(Kingston, Canada--Nuclear physics--Congresses)

S/056/61/040/003/024/031
B113/B202

24.6600

AUTHOR: Strutinskiy, V. M.

TITLE: Dependence of the angular distribution of fission fragments on the spin of the target nucleus

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 3, 1961, 933-935

TEXT: With small anisotropy of the angular distribution and weak dependence of the full decay probability of the compound nucleus Γ_t on the angular momentum J of the nucleus, analytical expressions can be obtained for the angular distribution if the dependence Γ_t on J is taken into account. The full width of the state of the compound nucleus is the sum of radiation width, neutron width, and fission width. Since the first one is small, it can be neglected, and the dependence Γ_n and Γ_f on the momentum can be determined by the statistical theory

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Dependence of the...

$$\Gamma_n(J) \approx \Gamma_n(0) \exp\left[-(\alpha_f - \alpha_i)\, J\,(J+1)\right], \qquad (2)$$

$$\Gamma_f(J) \approx (2J+1)^{-1}\, \Gamma_f(0) \exp\left[(\alpha_i - \alpha^*)\, J\,(J+1)\right] \times$$

$$\times \sum_{K=-J}^{J} \exp\left[-K^2/2K_0^2\right]. \qquad (3)$$

Here $\alpha = \hbar^2/2\vartheta T$ where ϑ is the moment of inertia of the nucleus and T the temperature of the nucleus. The index i denotes the initial compound nucleus, f the state of the compound nucleus after departure of the neutron, the asterisk designates the deformed "transition" nucleus. The constant $\vartheta_\perp$ occurring in the expression for $\alpha_\perp^* = \hbar^2/2\vartheta_\perp^* T^*$ is the moment of inertia of the transition nucleus with respect to an axis which is perpendicular to the axis of symmetry. If $\Gamma_n(J)$ and $\Gamma_f(J)$ are expanded into a series

$$\gamma_f(J) = \Gamma_f(J)/\Gamma_f(J) \approx \gamma_f^0 [1 + qJ(J+1) + \ldots], \qquad (4)$$

is obtained where $q = \gamma_n^{(0)}(\alpha_f - \alpha^*) + \gamma_f^{(0)}(1/2K_0^2)$. $\gamma_n^{(0)} = \Gamma_n(0)/\Gamma_f(0)$, $\gamma_f^{(0)} = \Gamma_f(0)/\Gamma_f(0)$.

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Dependence of the...

The expression for $\gamma_f(J)$ must be introduced into a general expression for the angular distribution of the fragment having the form

$$W_{lSJ}(\vartheta) = \frac{2J+1}{2(2J_0+1)} \sum_{m,K} (C^{JK}_{Sqlm})^2 a_J(K) |Y_{lm}(\vartheta)|^2, \qquad (5)$$

$$a_J(K) = \gamma_f(J)\,\alpha(K).$$

where l is the neutron orbital angular momentum and $S = J_0 \pm 1/2$ the spin of the channel with J_0 being the initial spin. The full angular distribution of the fragment is given by $W(\vartheta) = \sum_{lSJ} \zeta_l W_{lSJ}(\vartheta) \Big/ \sum_{lSJ} (2l+1)\zeta_l$, (6)

where ζ_l is the coefficient of neutron sticking. If (4) and (5) are introduced into (6)

$$W_{lS}(\vartheta) = \sum_J W_{lSJ}(\vartheta) = C \sum_{m=-l}^{l} |Y_{lm}(\vartheta)|^2 \times$$

$$\times \sum_{K=m-S}^{m+S} (1 + q[l(l+1) + S(S+1) + 2m(K-m)])\,\alpha(K), \qquad (7)$$

is obtained after summation over J; in this case the constant C is

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independent of l and S. For $\alpha(K)$ the expansion

$$\alpha(K) \approx 1 - K^2 (2K_0^2)^{-1} + \tfrac{1}{2}\eta K^4 (2K_0^2)^{-2} + \ldots \quad (8)$$

is used; the arbitrary coefficient η is introduced in order to take account of the possible deviation of the distribution $\alpha(K)$ from the Gaussian distribution at large K values of the projection of J. The term with K^4 leads to a correction of the second order of an infinitesimal. Under consideration of this fact

$$A(\vartheta) = [\sigma_l(\vartheta) - \sigma_l(90°)]/\sigma_l(90°) = (l^2/4K_0^2)\{[1 + (\overline{S^2}/6K_0^2) + q(\overline{l^4}/\overline{l^2} - \overline{l^2} + \tfrac{4}{3}\overline{S^2})]\cos^2\vartheta + (\eta/2K_0^2)[\tfrac{3}{8}\overline{l^4}(1 - \sin^4\vartheta) + \overline{l^2}(\overline{S^2} - 1/2)\cos^2\vartheta]\}, \quad (9)$$

is obtained from (6), (7), and (8) after simple calculation, where

$$\overline{l^2} = \sum_l (2l+1)\zeta_l l(l+1) \Big/ \sum_l (2l+1)\zeta_l \quad (10)$$

is the mean square of the momentum which is transferred to the nucleus by the neutron, $\overline{l^4}$ and $\overline{l^4}'$ are analog mean values of the quantities

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Dependence of the...

$l^2(l+1)^2$ and $l(l^2-1)(l+2)$, and $\overline{S}^2 = (J_o+1/2)^2 + 1/2$. In (9) the terms of third order of an infinitesimal are separated. In the first order the angular distribution is independent of the spin of the target nucleus because of $\overline{l}^2/2K_o^2$. The change of the anisotropy of the angular distribution with a change of $\overline{S}^2$ to $\overline{S}^2$ is equal to

$$\Delta_S A(0^\circ) = \tfrac{1}{4} P K_o^{-2} ((1 - 3\eta)/6K_o^2 + \tfrac{1}{3} q) \Delta S^2 \qquad (11)$$

According to the experimental data of L. Blumberg, R. B. Leachman (Ref. 2: Phys. Rev., 116, 102, 1959) there exists a small systematic difference of the anisotropy of the nuclei U^{235}, U^{233}, and Pu^{239} which can be interpreted as the effect of the initial spin. For the theoretical estimation of $\Delta_S A(0^\circ)$, $T_f = T' = T$ is introduced into (4). It holds:

$1/\mathcal{I}_f - 1/\mathcal{I}_\perp = \ldots_o (1.2z + 5.6z^2)$ where $\mathcal{I}_o$ is the moment of inertia of the spherical nucleus and $z = 1 - (Z^2/A)/(Z^2/A)_{Kp}$. With $T = 0.3$ Mev, $\ldots^{(o)}_n : \ldots^{(o)}_f \approx 0.5$ and the value $\mathcal{I}_o$ corresponding to a hard body the thermodynamical value $q \approx 0.01$ is obtained. It can be seen from (10) that at

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Dependence of the...

$\eta = 1$ a value of q exceeding 4 to 5 times the thermodynamical value would correspond to the experimental value of the difference $A(0^\circ)$, which does not correspond to expectations. Another possible effect is the reduction of the distribution $a(K)$ after comparison with the Gaussian distribution with large K which is to be expected in view of the finite dimensions of the nucleus. Hence η must be smaller than 1 or negative. At the above thermodynamical value q, $\eta = 0$ would then correspond to the experimental value $A(0^\circ)$. The author thanks Doctor J. Griffin for valuable discussion. There are 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc. The 2 references to English-language publications read as follows: L. Blumberg, R. B. Leachman. Phys. Rev., 116, 102, 1959. E. Simmons, R. L. Henkel. Phys. Rev., 120, 198, 1960.

SUBMITTED: October 22, 1960

Card 6/6

25199
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B108/B209

24.6600

AUTHOR: Strutinskiy, V. M.

TITLE: Angular correlations in statistical nuclear reactions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 6, 1961, 1794 - 1802

TEXT: The correlation between the directions of emission of particles emitted successively by a nucleus with a great angular momentum is considered. For the case of a two-particle cascade, the probability of particle emission in the directions $\vec{n}_1$ and $\vec{n}_2$ for a nucleus with the angular momentum $\vec{j}_1$ is given by

$$W_{j_1}(1,2)\,d\Omega_1 d\Omega_2 = \sum\!\!\!\!\!\!\int \frac{d\Gamma^{(1)}_{p_1}(j_1, j_2; l_1, n_1)}{\Gamma^{(1)}_{tot}(j_1)} \frac{d\Gamma^{(2)}_{p_2}(j_2, j_3; l_2, n_2)}{\Gamma^{(2)}_{tot}(j_2)}, \qquad (1)$$

where $d\Gamma^{(1)}_{p_1}$ is the partial emission width of the particle p_1 with the orbital angular momentum $\vec{l}_1$ in the direction $\vec{n}_1$; $d\Gamma^{(2)}_{p_2}$ is the analogous

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quantity for the second particle; $\vec{j}_1$, $\vec{j}_2$, and $\vec{j}_3$ are the angular momenta of the initial, compound, and final nucleus, respectively. With the quasiclassical expression

$$d\Gamma_{p_1}^{(1)}(j_1, j_2; l_1, m_1) = C_1 (\rho^{(2)}(j_2)/\rho^{(1)}(j_1)) T_1(l_1) \times \\ \times \delta^3(j_1 - j_2 - l_1)\, \delta(l_1 n)\, d^3 j_2 d^3 l_1 d\Omega_1. \quad (3)$$

and the equation for the total emission width for p_2-particles emitted by the compound nucleus, Eq. (1) assumes the form

$$\Gamma_J(1, 2) = \frac{1}{(2\pi)^2} \int\int d^3 l_1\, d^3 l_2 \gamma_{p_1}^{(1)}(j_1)\, \gamma_{p_2}^{(2)}(j_2)\, \rho^{(2)}(j_1 - l_1) \times \\ \times \rho^{(3)}(j_1 - l_1 - l_2) \frac{T_1(l_1)\, T_2(l_2)}{N_1(j_1)\, N_2(|j_1 - l_1|)} \delta(l_1 n_1)\, \delta(l_2 n_2), \quad (5)$$

$T_1(l_1)$ and $T_2(l_2)$ are the permeability factors of the barrier for particles p_1 and p_2; the quantities ρ are the level densities of the respective nuclei; $\gamma_{p_1}^{(1)}(j_1)$ is the relative probability of emission of a particle p_1 by a nucleus with momentum j_1; $N_1(j_1)$ and $N_2(j_2)$ are normalization factors of the form

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$$N_1(j_1) = \frac{1}{2\pi}\int\int d^3\Omega_1 d^3 l_1 T_1(l_1)\ \rho^{(2)}(j_1 - l_1)\ \delta(l_1 n_1) = \\ = \int \frac{d^3 l_1}{l_1} T_1(l_1)\ \rho^{(2)}(j_1 - l_1). \qquad (7)$$

The integral expression in (5), which depends on the orientation of the momenta, can be determined when the dependence of the nuclear level density on the momentum is known. The author considers the case in which the final nucleus remains in a state with small angular momentum after emission of the second particle. When introducing $\rho^{(3)}(\vec{j}_1 - \vec{l}_1 - \vec{l}_2)$ $= \rho_0 \delta^3(\vec{j}_1 - \vec{l}_1 - \vec{l}_2)$ (10) into Eq. (5), one obtains

$$W_j(1,2) = \frac{1}{2\pi^2}\gamma^{(1)}_{p_1}(j_1) N_1^{-1}(j_1)\int d^3 l_1 f(|j_1 - l_1|)\ T_1(l_1) \times \\ \times \delta(l_1 n_1)\ \delta(j_1 n_2 - l_1 n_2), \qquad (11)$$

where $f(|j_2|) = \rho^{(2)}_{p_2}(j_2) j_2 \rho^{(2)}(j_2)$; $\vec{j}_2 = \vec{j}_1 - \vec{l}_1$. When $j \gg l_1$ one may ex-

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pand $f(j_2)$ in a power series of the small quantity $x = (\vec{l}_1\vec{j}_1)/j_1^2$; $f(j_2) \approx f(j_1)(1+a_1x+a_2x^2+ \ldots.)$ (12). The coefficients a_1 and a_2 are equal to

$$a_1 = 2\alpha_2 j_1^2 - 1 + q_1,$$

$$a_2 = 2\alpha_2^2 j_1^4 - \tfrac{1}{2} - 2\alpha_2 j_1^2 + q_2 - q_1 + 2\alpha_2 j_1^2 q_1, \qquad (13),$$

where q_1 and q_2 are determined by $\gamma_{p_2}^{(2)}(j_2) = \gamma_{p_2}^{(2)}(j_2)(1+q_1x+q_2x^2 \ldots.)$ (14). For the following considerations θ_1, θ_2, Φ_1, Φ_2 denote the angular coordinates of the directions $\vec{n}_1$ and $\vec{n}_2$; ϑ_1, φ_1, ϑ_j, φ_j are the angular coordinates of the vectors l_1 and j_1. For the case where both counters are in a plane perpendicular to the beam ($\theta_1 = \theta_2 = \pi/2$), the probability is given by

$$W_j = \frac{1}{16\pi^2}\gamma_{p_1}^{(1)}(j)\,\gamma_{p_2}^{(2)}(j)\left(1 + \frac{a_1 - a_2}{2}\frac{\bar{l}^2}{j^2}\sin^2\omega\right), \quad \bar{l}^2 = \int_0^\infty l^3 T_1(l)\,dl \Big/ \int_0^\infty l T_1(l)\,dl. \qquad (16),$$

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where ω denotes the angle between the counters ($\omega = \Phi_1 - \Phi_2$). For the case where the counters and the beam are in the same plane, one has to distinguish between two cases: a) $\theta_2 = \pi/2$, $\Phi_1 = \Phi_2 = 0$ or π; b) $\theta_1 = \pi/2$.

In case a) one obtains

$$W_j(1, 2) = (1/16\pi^3)\, \gamma^{(1)}_{p_1}(j)\, \gamma^{(2)}_{p_2}(j)\, (1 + (\bar{l}^2/2j^2)\, (\tfrac{1}{2} + a_1)\cos^2\theta_1). \qquad (21),$$

and in case b)

$$W_j(1, 2) = \frac{1}{4\pi^2}\frac{\gamma^{(1)}_{p_1}(j)\, f(j)}{jN(j)}\int_0^\infty W_{l,j}\, lT_1(l)\, dl, \qquad (23),$$

$$W_{l,j}(1, 2) = \sin^{-1}\theta_2\, [A(k) + (a_2 l^2/3j^2)\, B(k)];$$

$$A(k) = \frac{2}{\pi} \times \begin{cases} K(k), & k = l\,\mathrm{tg}\,\theta_2/j \leqslant 1, \\ k^{-1}K(k^{-1}), & k \geqslant 1, \end{cases}$$

$$B(k) = \frac{2}{\pi} \times \begin{cases} K(k) + E(k) - k^{-2}[K(k) - E(k)], & k \leqslant 1, \\ k^{-1}[K(k^{-1}) + E(k^{-1}) - k^2(K(k^{-1}) - E(k^{-1}))], & k \geqslant 1. \end{cases}$$

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where K(k) and E(k) are elliptic integrals of the first and second kind, respectively. The angular correlation between a particle and the fission fragments may formally be treated as the two-particle angular correlation. The general result for this case has the form

$$W_1(p, f) = \frac{1}{(2\pi)^2} \frac{\Gamma_p^{(1)}(j_1)}{N_1(j_1)} \int d^3 l_1 \Gamma_f^{(2)}(j_2)\ \rho^{(2)}(j_2)\ \delta(l_1 n_1)\ \mathfrak{R}(j_2 n_f), \qquad (30)$$

where $\vec{j}_2 = \vec{j}_1 - \vec{l}_1$; $\vec{n}_1$ and $\vec{n}_f$ are the directions of emission of particle and fragments, respectively; $\Gamma_f^{(2)}$ is the relative fission probability of the compound nucleus. The function

$$\mathfrak{R}(j_2 n_f) = R(j^2/2K_0^2) \exp(-K^2/2K_0^2),\ K = j_2 n_f \qquad (31)$$

is the projection of the momentum of the compound nucleus upon the direction of fission. In this function, $R(z) = \int_{-1}^{+1} e^{-zx^2} dx$. The quantity K_0 is given by the relation $1/2K_0^2 = (1/\mathcal{J}' + 1/\mathcal{J}'')T^*$, where $\mathcal{J}'$, $\mathcal{J}''$, and T^*

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S/056/61/040/006/020/03?
B108/B209

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are respectively, the moments of inertia and the temperature of the fragments. There are 8 references: 3 Soviet-bloc and 4 non-Soviet-bloc. The two references to English-language publications read as follows: F. Eriksen, V. Strutinskiy, Nucl. Phys. 8, 281 (1958); T. Eriksen, Nucl. Phys. 17, 250 (1960).

SUBMITTED: January 6, 1961

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S/056/62/042/006/024/047
B104/B102

AUTHOR: Strutinskiy, V. M.

TITLE: The equilibrium shapes of a nucleus in the quasi-static fission model

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 6, 1962, 1571-1581

TEXT: The variational equation for delimiting the extreme surface of a nucleus is an integro-differential equation,

$$yy'' = 1 + y'^2 - 4y\,[\lambda_1 + \lambda_2 f(z, y) + \tfrac{5}{2} x\varphi_s(z, y)]\,(1 + y'^2)^{3/2} \qquad (3)$$

$$(y' \equiv dy/dz, \quad y'' \equiv d^2y/dz^2),$$

wherein $y = y(z)$ describes the surface of the nucleus and $\varphi_s(z,y)$ is the Coulomb potential at the (z,y) point of the surface. The axially symmetric case where z is directed along the axis of symmetry is examined.

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An iteration method for solving (3) to find the fission barrier is suggested. The equilibrium shape of a nucleus is found to depend slightly on the Coulomb potential at a given deformation and volume of the nucleus. There are 6 figures.

SUBMITTED: December 25, 1961

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B/054/62...
B104/B108

AUTHORS: Strutinskiy, V. M., Lyashchenko, N. Ye., Popov, N. A.

TITLE: Symmetrical shapes of equilibrium in the nuclear model with a sharp surface (drop model)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 2(8), 1962, 584-594

TEXT: The symmetrical equilibrium shape of a nucleus are investigated by solving Euler's variational equation

$$y\frac{d^2y}{dz^2} - 1 - \left(\frac{dy}{dz}\right)^2 + y\left[\lambda_1 + \lambda_2|z| + \frac{5}{2}x(D_s(z,y)\right]_L^{-1} + \left(\frac{dy}{dz}\right)^2\Big]^{3/2} = 0, \qquad (2)$$

by means of an iteration method. $y = y(z)$ describes the surface of the nucleus which is symmetric about the z axis.

$$x = (Z^2/A)/(Z^2/A)_{crit} = \frac{2}{10}(Z^2e^2/4\pi\sigma R^3),$$

is the usual parameter of the "liquid drop model of nucleus", σ is the

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surface energy density, R is the radius of a sphere of a volume equal to the volume of the nucleus, and φ_n is the Coulomb potential on the nuclear surface. The conditional and unconditional equilibria for the usual sequence of nuclear figures, as well as for figures with two and three necks are studied. The development of "quasi molecules" is investigated. There are 6 figures.

SUBMITTED: March 2, 1962

S/089/63/014/002/005/019
B102/B186

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AUTHORS: Pankratov, V. M., Strutinskiy, V. M.

TITLE: Study of a fission possibility at a definite excitation energy of the compound nucleus

PERIODICAL: Atomnaya energiya, v. 14, no. 2, 1963, 171 - 176

TEXT: Interpretation of the experimental results when the energy of the particles released during fission is in the region of 10-Mev encounters difficulties due to one or more neutrons being emitted in one part of the fissions. In an attempt to circumvent these difficulties a method was developed for calculating mass and energy distributions of the fission fragments. This method is suitable for cases where the distribution can be assumed to depend only on the nucleon composition and excitation energy of the compound nucleus and not on its mechanism of formation. The observed distributions of the two initial fissile nuclei can then be compared as between those whose neutron numbers differ by those whose initial excitation energies differ by $\Delta\bar{U} = B_n + \bar{\varepsilon}$ where B_n is the neutron binding energy and $\bar{\varepsilon}$ is its mean kinetic energy. If it be further assumed that the nuclear

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charge remains constant, and if the emission of charged particles is neglected, it is possible to calculate a series of interesting quantities such as the relative probability of direct fission of the initial compound nucleus or the total fragment energy for given ratio from the fission cross sections and fission probabilities of the two nuclei considered. All the quantities entering into the given relations can be determined experimentally. As an example the experimental data relating to α-particle induced fission of Th^{232} and U^{233} obtained by the time-of-flight method are analyzed. It can be shown that the fission is asymmetric if the excitation energy of the fissile nucleus is ~25 Mev. The theory also provides a good description of the drop observed in the mass distribution in the region of symmetric fission and the dip of the curve $E_{kin} = f(m_2/m_1)$. There are 7 figures.

SUBMITTED: May 4, 1962

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L 10194-63 EWT(m)/BDS--AFFTC/ASD

ACCESSION NR: AP3000072 S/0056/63/044/005/1719/1722

AUTHOR: Strutinskiy, V. M. 50

TITLE: Probability of isomerism in the statistical model of the nucleus 19

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 44, no. 5, 1963, 1719-1722

TOPIC TAGS: isomerism probability, statistical model of nucleus

ABSTRACT: The probability of the occurrence of isomerism of a nuclear level is estimated on the basis of the statistical model of the nucleus, which predicts a monotonic increase in the average angular momentum of the nucleus with increasing excitation energy. From the viewpoint of the statistical model, nuclear isomerism is a consequence of the angular-momentum distribution, and it is shown that the probability of isomerism is relatively large for states with angular mementa that are close to the maximum possible values for a given excitation. The nature of such states and the conditions under which it might be possible to observe them are analyzed. Orig. art. has: 17 formulas.

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STRUTINSKIY, V.M.; TYAPIN, A.S.

Quasi-static liquid-drop model of the nucleus as an approximation to the statistical model. Zhur. eksp. i teor. fiz. 45 no.4:960-965 O '63. (MIRA 16:11)

ACCESSION NR: AP4009110 S/0056/63/045/006/1891/1899

AUTHOR: Strutinskiy, V. M.

TITLE: Equilibrium shape of the nucleus according to the model of a liquid drop with variable surface tension

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 45, no. 6, 1963, 1891-1899

TOPIC TAGS: nuclear shape, symmetric equilibrium shape, asymmetric equilibrium shape, liquid drop model, variable surface tension, surface tension variation

ABSTRACT: Continuing earlier work by the author (ZhETF v. 42, 1571, 1962), results are presented of calculations of symmetric and asymmetric equilibrium shapes of nuclei, based on the liquid drop model with variable surface tension. The results apply to the usual sequence of equilibrium symmetric shapes without a neck and with a single neck, as well as of asymmetric shapes with a single neck. Equilibrium shapes of other types are characterized by con-

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ACCESSION NR: AP4009110

siderably higher energies. The new calculations confirmed the effectiveness of the iteration method employed, and in all the significant cases the answer could be obtained practically with any desired degree of accuracy. The author therefore concludes that the results correspond without any doubt to the true solution of the problem. Orig. art. has: 4 figures, 22 formulas, and 1 table.

ASSOCIATION: None

SUBMITTED: 06Apr63	DATE ACQ: 02Feb64	ENCL: 00
SUB CODE: PH	NO REF SOV: 004	OTHER: 004

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